UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/071,312	02/06/2002	Donald B. Harbin	P12245	9979

		EXAMINER
7590	03/23/2006	DALENCOURT, YVES

Grossman, Tucker, Perreault & Pfleger, PLLC
c/o PortfolioIP
P.O. Box 52050
Minneapolis, MN 55402

ART UNIT	PAPER NUMBER
2157	

DATE MAILED: 03/23/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

<table>
<tr><td rowspan="2">Office Action Summary</td><td>Application No.
10/071,312</td><td>Applicant(s)
HARBIN ET AL.</td></tr>
<tr><td>Examiner
Yves Dalencourt</td><td>Art Unit
2157</td></tr>
</table>

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>*27 December 2005*</u>.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-9 and 18-27* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-9 and 18-27* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.

5)☐ Notice of Informal Patent Application (PTO-152)

6)☐ Other: _____.

DETAILED ACTION

1.   This office action is responsive to amendment filed on 12/27/2005.

Response to Amendment

2.   The examiner has acknowledged Applicants' response.

Response to Arguments

3.   Applicant's arguments with respect to claims 1 - 27 have been considered

but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 112

4.   The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly
> claiming the subject matter which the applicant regards as his invention.

5.   Claim 9 recites the limitation "the network adapter" in line 3. There is

insufficient antecedent basis for this limitation in the claim. A network adapter

has not previously been identified in claims.

Claim Rejections - 35 USC § 102

6.   The following is a quotation of the appropriate paragraphs of 35

U.S.C. 102 that form the basis for the rejections under this section made in this

Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section
> 122(b), by another filed in the United States before the invention by the applicant for patent or

(2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

7.   Claims 1 – 22, and 24 - 27 are rejected under 35 U.S.C. 102(e) as being anticipated by Johnson et al (US 2002/0161934; hereinafter Johnson).

8.   Regarding claims 1, 18 - 19, and 24 – 25, Johnson teaches a system and a storage node comprising a communication adapter coupled to a transmission medium to transmit and receive data according to a network protocol (figs. 1-6; paragraphs [0025] and [0035]); a data bus coupled to one or more storage nodes, each storage node comprising storage resources and logic to transmit data to or receive data from a storage medium according to an input/output format (paragraphs [0025], [0029] and [0039]); and a processing system to host a common transport agent, the common transport agent comprising a first interface comprising one or more method interfaces to communicate with each storage node independently of the input/output format of the storage node (abstract, paragraphs [0012], [0041], [0050], [0056], [0058], and [0065]; Johnson discloses that the remote procedure call used to transport the formatted data to storage management system 104 is operating system independent). Claim 18 adds the limitation of an I/O controller to store data and retrieve data from a storage medium according to an I/O format (paragraph [0071]).

9.   Regarding claims 2 and 26, Johnson teaches the system of claim 1 and the storage node of claim 18, wherein the processing system further comprises a unit management agent to discover the storage resources of the storage nodes

and post an indication of the discovered storage resources to the network

(paragraphs [0056] and [0062 – 0063).

10.   Regarding claim 3, Johnson teaches the system of claim 2, wherein the

unit management agent comprises logic to establish a connection between a

client on the network and a storage node in response to a connection request

from the client (paragraphs [0038 - 0039]).

11.   Regarding claim 4, Johnson teaches the system of claim 1, wherein the

system further comprises a plurality of storage nodes coupled to the data bus

(paragraph [0021]).

12.   Regarding claim 5, Johnson teaches the system of claim 4, wherein each

of the storage nodes comprises: an input/output controller coupled to a storage

medium to store data in or retrieve data from the storage medium according to an

input/output format (805, fig. 8); and a processing system to host a device driver

module to communicate with the input/output controller according to the

input/output format (paragraphs [0039] and [0041]); and a remote transport agent

to communicate with the first interface of the common transport agent

independently of the input/output format (paragraphs [0012], [0041], [0050],

[0056], [0058], and [0065]; Johnson discloses that the remote procedure call

used to transport the formatted data to storage management system 104 is

operating system independent).

13.   Regarding claim 6, Johnson teaches the system of claim 4, wherein each

of the storage nodes is coupled to a redundant array of independent disks

through an input/output channel (paragraph [0023]).

14.   Regarding claims 7 and 20, Johnson teaches the system of claim 6,

wherein the input/output channel comprises one of a small computer system

interface and serial ATA adapter (paragraph [0041]).

15.   Regarding claims 8 and 27, Johnson teaches the system of claim 4,

wherein the network protocol comprises a network protocol selected from one of

Infiniband and TCP/IP (paragraph [0057]).

16.   Regarding claims 9, 21, and 22, Johnson teaches the system of claim 1

and the node of claim 18, wherein the common transport agent further comprises

a second interface comprising one or more method interfaces to communicate

with the network adapter, the one or more method interfaces of the second

interface being independent of the network protocol (fig. 6; paragraphs [0012],

[0031 - 0033]).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for

all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described
> as set forth in section 102 of this title, if the differences between the subject matter sought to
> be patented and the prior art are such that the subject matter as a whole would have been
> obvious at the time the invention was made to a person having ordinary skill in the art to which
> said subject matter pertains. Patentability shall not be negatived by the manner in which the
> invention was made.

This application currently names joint inventors. In considering

patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that

the subject matter of the various claims was commonly owned at the time any

inventions covered therein were made absent any evidence to the contrary.

Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor

and invention dates of each claim that was not commonly owned at the time a

later invention was made in order for the examiner to consider the applicability of

35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35

U.S.C. 103(a).

17.   Claim 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over

Johnson et al (US 2002/0161934; hereinafter Johnson) in view of Cayton et al

(US 2003/0043794; hereinafter Cayton).

18.   Regarding claim 23, Johnson teaches substantially all the limitations in

claim 18, but fails to specifically teach that the processing system comprises a

memory and the interface comprises one or more method interfaces to initiate

remote direct memory access transactions to transfer data between buffers in the

memory and the storage medium.

19.   However, Cayton teaches in an analogous art, a data stream multiplexing

in data network, wherein the processing system comprises a memory and the

interface comprises one or more method interfaces to initiate remote direct

memory access transactions to transfer data between buffers in the memory and

the storage medium (paragraphs [0041], [0051 – 0052], and [0067].

20.   Thus, it would have been obvious to one of ordinary skill in the art at the

time the invention was made to modify the teachings of Cayton by having a

processing system that comprises a memory and the interface comprises one or

more method interfaces to initiate remote direct memory access transactions to

transfer data between buffers in the memory and the storage medium for the

purpose of increasing the overall performance by reducing both latency and

utilization of the CPU when transferring data.

Contact Information

Any inquiry concerning this communication or earlier communications

from the examiner should be directed to Yves Dalencourt whose telephone

number is (571) 272-3998. The examiner can normally be reached on M-TH

7:30AM - 6: 00PM.

If attempts to reach the examiner by telephone are unsuccessful, the

examiner's supervisor, Ario Etienne can be reached on (571) 272-4001. The fax

phone number for the organization where this application or proceeding is

assigned is 571-273-8300.

Information regarding the status of an application may be obtained from

the Patent Application Information Retrieval (PAIR) system. Status information

for published applications may be obtained from either Private PAIR or Public

PAIR. Status information for unpublished applications is available through

Private PAIR only. For more information about the PAIR system, see http://pair-

direct.uspto.gov. Should you have questions on access to the Private PAIR

system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-

free).

Yves Dalencourt

March 14, 2006